Remarks

Claim 24 has been amended in order to recite the subject invention with greater particularity. The use clause has been deleted therefrom to conform the claims to standard U.S. practice.

New claims 25-40 have been added and recite additional embodiments of the invention. Support for the new claims may be found in the claims as originally filed, as well as throughout the specification at, e.g., page 3, lines12-13; page 4, line 1; page 4, lines 27-28; page 5, lines 9-11; page 5, lines 16-29; page 6, lines 15-17; Example 3; and Example 5.

The above amendments and new claims are made for reasons unrelated to patentability. Entry of the foregoing amendments is respectfully requested.

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Version with markings to show changes made

In the Claims:

Claim 24 has been amended as follows:

24. (Amended) A protein having a molecular weight of about 24 kd, or a functionally equivalent variant or fragment thereof, wherein said protein, functionally equivalent variant or fragment thereof, is [and] capable of specifically binding to the E2 protein of hepatitis C virus[, for use as a pharmaceutical].

New claims 25-40 have been added:

--25. (New) The protein of claim 24, wherein the protein lacks the functional portion of the transmembrane domain.

26. (New) The protein of claim 24, wherein the protein is produced by a method comprising:

(a) providing a mammalian cell that expresses said 24 kd protein;

(b) recovering and solubilzing membranes from said mammalian cell to provide a cell membrane preparation;

(c) subjecting the cell membrane preparation to ammonium sulfate precipitation at less than 33% saturation and retaining the supernatant;

(d) subjecting the supernatant to ammonium sulfate precipitation at between 33% and 50% saturation and retaining the precipitate;

(e) resuspending the precipitate;

(f) subjecting the precipitate to hydrophobic interaction chromatograpy and recovering the nonretained material.

27. (New) The protein of claim 26, wherein the mammalian cell that expresses said 24 kd protein hyperexpresses said 24 kd protein.

28. (New) The protein of claim 27, wherein the mammalian cell is a MOLT-4 cell.

29. (New) The protein of claim 28, wherein the cell membrane preparation is a plasma cell membrane preparation.

30. (New) An unglycosylated, transmembrane protein having a molecular weight of about 24 kd as determined by SDS-PAGE, wherein said protein specifically binds the E2 protein of hepatitis C virus and is stable to acetone precipitation.

31. The protein of claim 30, wherein the protein is produced by a method comprising:

(a) providing a mammalian cell that expresses said 24 kd protein;

(b) recovering and solubilzing membranes from said mammalian cell to provide a cell membrane preparation;

(c) subjecting the cell membrane preparation to ammonium sulfate precipitation at less than 33% saturation and retaining the supernatant;

(d) subjecting the supernatant to ammonium sulfate precipitation at between 33% and 50% saturation and retaining the precipitate;

(e) resuspending the precipitate;

(f) subjecting the precipitate to hydrophobic interaction chromatograpy and recovering the nonretained material.

32. (New) The protein of claim 31, wherein the mammalian cell that expresses said 24 kd protein hyperexpresses said 24 kd protein.

33. (New) The protein of claim 32, wherein the mammalian cell is a MOLT-4 cell.

34. (New) The protein of claim 33, wherein the cell membrane preparation is a plasma cell membrane preparation.

35. (New) A composition comprising the protein of claim 26.

36. (New) A composition comprising the protein of claim 30.

37. (New) A composition comprising the protein of claim 31.

38. (New) A composition comprising the protein of claim 32.

39. (New) A composition comprising the protein of claim 33.

40. (New) A composition comprising the protein of claim 34.--

Currently Pending Claims

24. (Amended) A protein having a molecular weight of about 24 kd, or a functionally equivalent variant or fragment thereof, wherein said protein, functionally equivalent variant or fragment thereof, is capable of specifically binding to the E2 protein of hepatitis C virus.

25. (New) The protein of claim 24, wherein the protein lacks the functional portion of the transmembrane domain.

26. (New) The protein of claim 24, wherein the protein is produced by a method comprising:

(a) providing a mammalian cell that expresses said 24 kd protein;

(b) recovering and solubilzing membranes from said mammalian cell to provide a cell membrane preparation;

(c) subjecting the cell membrane preparation to ammonium sulfate precipitation at less than 33% saturation and retaining the supernatant;

(d) subjecting the supernatant to ammonium sulfate precipitation at between 33% and 50% saturation and retaining the precipitate;

(e) resuspending the precipitate;

(f) subjecting the precipitate to hydrophobic interaction chromatograpy and recovering the nonretained material.

27. (New) The protein of claim 26, wherein the mammalian cell that expresses said 24 kd protein hyperexpresses said 24 kd protein.

28. (New) The protein of claim 27, wherein the mammalian cell is a MOLT-4 cell.

29. (New) The protein of claim 28, wherein the cell membrane preparation is a plasma cell membrane preparation.

30. (New) An unglycosylated, transmembrane protein having a molecular weight of about 24 kd as determined by SDS-PAGE, wherein said protein specifically binds the E2 protein of hepatitis C virus and is stable to acetone precipitation.

31. The protein of claim 30, wherein the protein is produced by a method comprising:

(a) providing a mammalian cell that expresses said 24 kd protein;

(b) recovering and solubilzing membranes from said mammalian cell to provide a cell membrane preparation;

(c) subjecting the cell membrane preparation to ammonium sulfate precipitation at less than 33% saturation and retaining the supernatant;

(d) subjecting the supernatant to ammonium sulfate precipitation at between 33% and 50% saturation and retaining the precipitate;

(e) resuspending the precipitate;

(f) subjecting the precipitate to hydrophobic interaction chromatograpy and recovering the nonretained material.

32. (New) The protein of claim 31, wherein the mammalian cell that expresses said 24 kd protein hyperexpresses said 24 kd protein.

33. (New) The protein of claim 32, wherein the mammalian cell is a MOLT-4 cell.

34. (New) The protein of claim 33, wherein the cell membrane preparation is a plasma cell membrane preparation.

35. (New) A composition comprising the protein of claim 26.

36. (New) A composition comprising the protein of claim 30.

37. (New) A composition comprising the protein of claim 31.

38. (New) A composition comprising the protein of claim 32.

39. (New) A composition comprising the protein of claim 33.

40. (New) A composition comprising the protein of claim 34.